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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,527	10/03/2003	Roland A. Wood	H0001861 (1100.1214101)	1355
128	7590	05/25/2006	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			ZETTL, MARY E	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/678,527

Applicant(s)

WOOD ET AL.

Examiner

Mary Zettl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-17 and 19-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1,3-15 and 23-26 is/are allowed.
- 6) ☒ Claim(s) 16,17,19-22 and 27-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed on April 3, 2006 has been entered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16, 17, 19-22, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashio et al. (US 2001/0025926 A1) in view of Hashimoto et al. (US 2003/0066967 A1).

Regarding claim 16, Mashio teaches a sensing means comprising: means for sensing infrared light (Figure 2, item 1); means (Figure 1, item 7) for electronically processing signals related to the infrared light sensed by the means for sensing infrared light; and means for supporting on one level the means for sensing infrared light (Figure 2, item 2). Mashio et al. further teaches the means for electronically processing signals having an area that is a **fraction** (wherein a fraction by definition may include improper fractions) of the area of the means for sensing infrared light. Mashio et al. do not specify that the detecting portion is a pixel. Hashimoto et al. also teach a thermal infrared sensor and further specify the detecting portion being pixel cells (paragraph

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57). At the time the invention was made, one of ordinary skill would recognize that a pixel was the conventional means for detection.

Regarding claim 19, Mashio does not disclose expressly an array of pixels. Hashimoto et al. teach an array (matrix) of pixels (paragraph 52). At the time the invention was made, it would have been obvious to one of ordinary skill that the invention of Mashio would have been formed into an array of pixels as was conventional in the art as a means for maximizing the detecting potential of a sensor.

Regarding claims 20 and 21, Mashio does not disclose expressly a microbolometer, however the invention of Mashio has the features of a bolometer; a thermal sensor for detecting electromagnetic radiation (Abstract) including an absorber (paragraph 8). It would further be obvious to one of ordinary skill in the art that the sensor would be a microbolometer as microbolometers are less expensive to operate. It would further be obvious to one of skill in the art that  $\text{VO}_x$  is an inherent component of a microbolometer. Mashio et al. further teach MOS circuitry (page 5, paragraph 79), which implies small area FET, which implies small area transistor circuitry.

Regarding claims 17 and 22, Mashio further teaches the means for supporting on one level supporting the means for sensing infrared light over a thermal isolating opening (Figure 2, item 6).

Regarding claims 27-29, Mashio et al. teach a sensing means comprising; means for sensing infrared light (detecting portions; Figure 2, item 2); means for electronically processing signals related to infrared light sensed by the means for sensing infrared light (Figure 2, item 7); and means for supporting (substrate; Figure 2,

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item 1) the means for sensing infrared light and the means for electronically processing signals horizontally proximate to each other. Mashio et al. further teaches the means for electronically processing signals having an area that is a **fraction** (wherein a fraction by definition may include improper fractions) of the area of the means for sensing infrared light.

***Allowable Subject Matter***

3. Claims 1, 2-15 and 23-26 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 11, and 23-26, prior art such as Higashi (US 5,300,915 A) and Sauer (US 6,498,347 B2) both teach sensors with fill factors greater than 69 percent, however both achieve such high fill factors by having the pixel and the electronics circuit situated on different levels. Prior art fails to teach or make obvious a sensor with a pixel situated on a single level (first plane, first surface, horizontally proximate, or any other phrase used to indicate the same) an electronics circuit situated on the single level (first plane, first surface, horizontally proximate, or any other phrase used to indicate the same), wherein the pixel has a fill factor greater than 69 percent.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

4. Applicant's arguments, see page 8, filed April 3, 2006, with respect to the rejection(s) of claim(s) 1, 11, 12, 16, and 25-29 under 102(e) have been fully considered and are persuasive. However, upon further consideration, a new ground(s) of rejection is made in view of Mashio et al. (US 2001/0025926 A1) and further in view of Hashimoto et al. (US 2003/0066967 A1).

Applicant's arguments filed April 3, 2006, with respect to the rejection(s) of claim(s) 16, 27, 28, and 29 under 103(a) have been fully considered but they are not persuasive. The applicant argued that Mashio does not teach or suggest a sensor having a means for electronically processing signals having an area that is a **fraction** of the area of the means for sensing infrared light. However, by definition a fraction is an expression that indicates the quotient of two quantities, and as such an improper fraction fits this definition as well.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is (571) 272-6007. The examiner can normally be reached on M-F 8am-4:30pm.

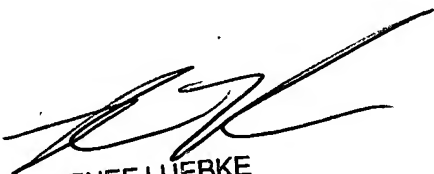
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on (571) 272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

4/13

MZ

  
RENEE LUEBKE  
PRIMARY EXAMINER